

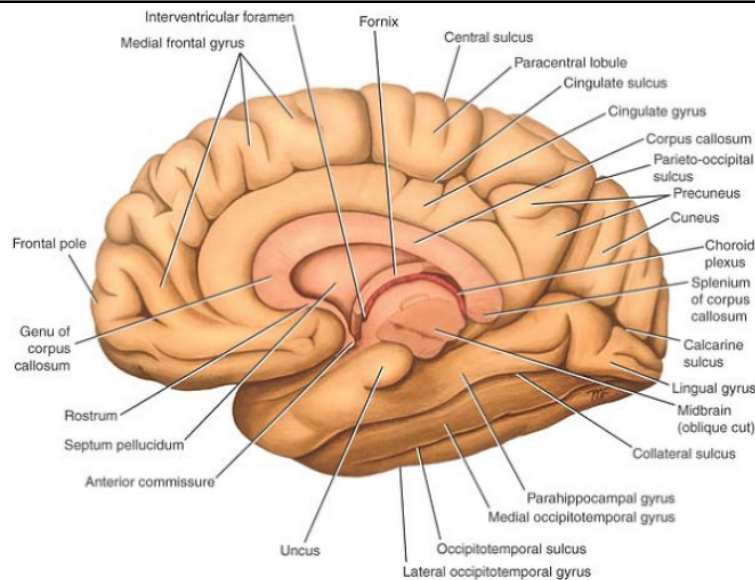
White Matter of the Cerebral Hemispheres



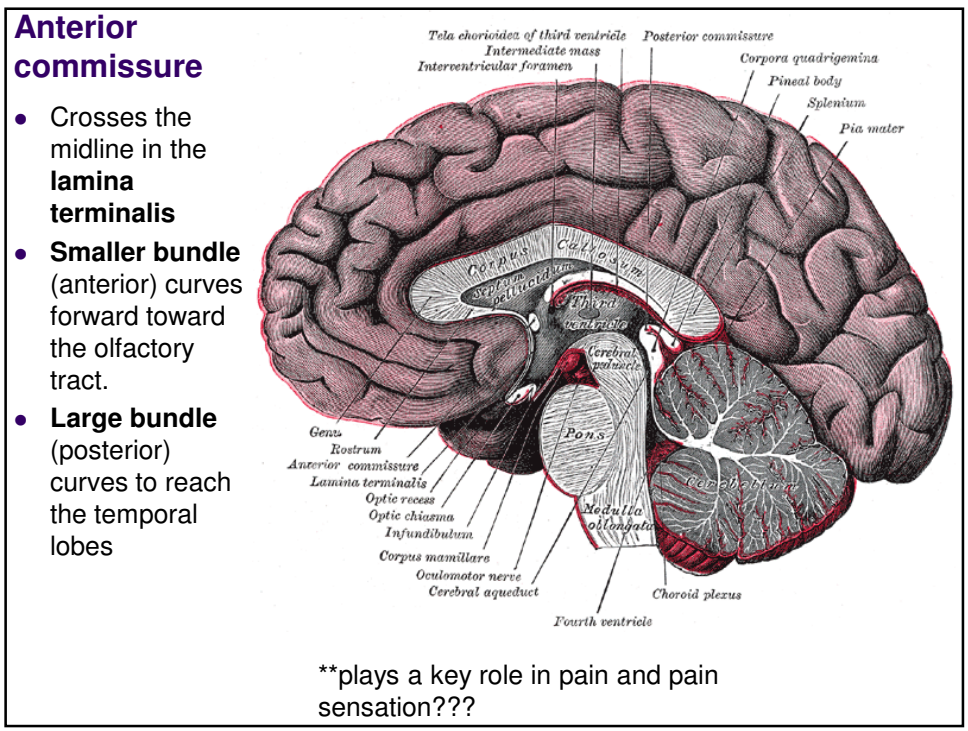
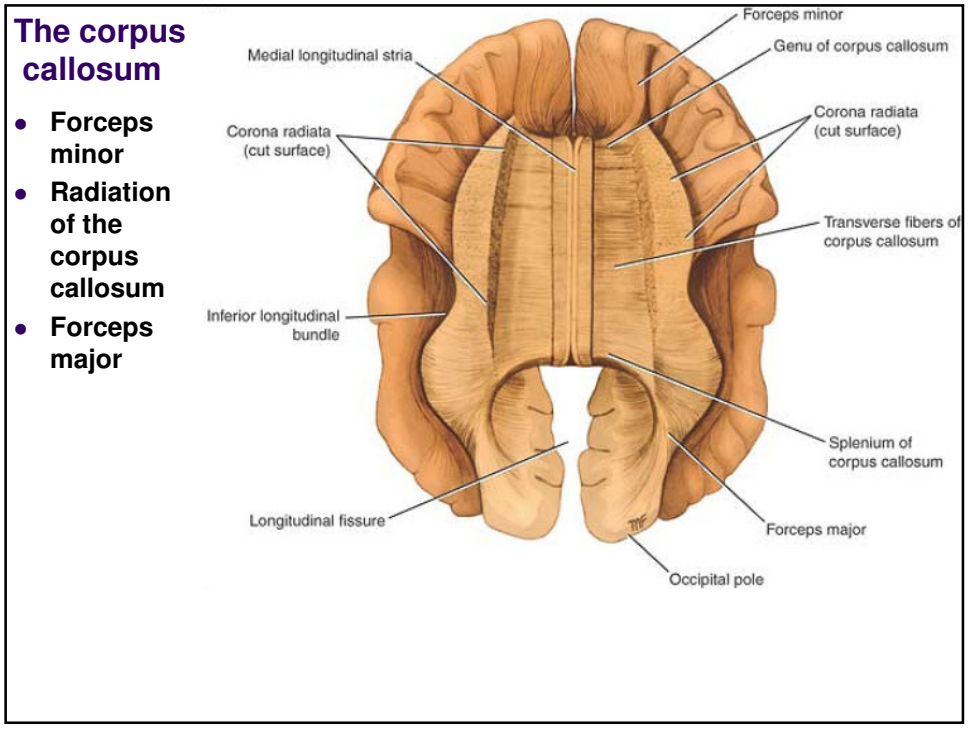
- 1) Commissural fibers
 - 2) Association fibers
 - 3) Projection fibers
- Commissure fibers connect corresponding regions of the two hemispheres.
 - Corpus callosum
 - Anterior commissure
 - Posterior commissure
 - Fornix
 - Habenular commissure.

The corpus callosum

- The largest commissure of the brain, connects the two cerebral hemispheres (at the bottom of the longitudinal fissure)
- Divided into:
 - **Rostrum:** continuous with the upper end of the lamina terminalis



- **Genu:** bends inferiorly in front of the septum pellucidum
- **Body**
- **Splenium**

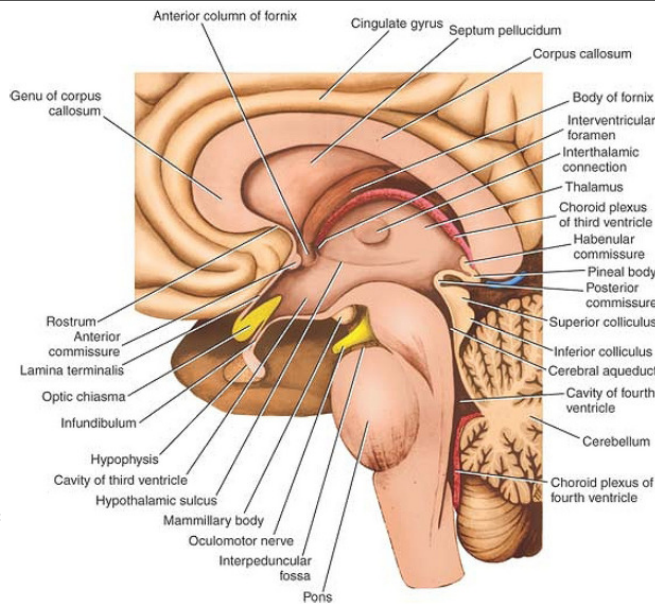


Posterior commissure

- Crosses the midline immediately above the opening of the cerebral aqueduct into the third ventricle (involved in the pupillary light reflex)?

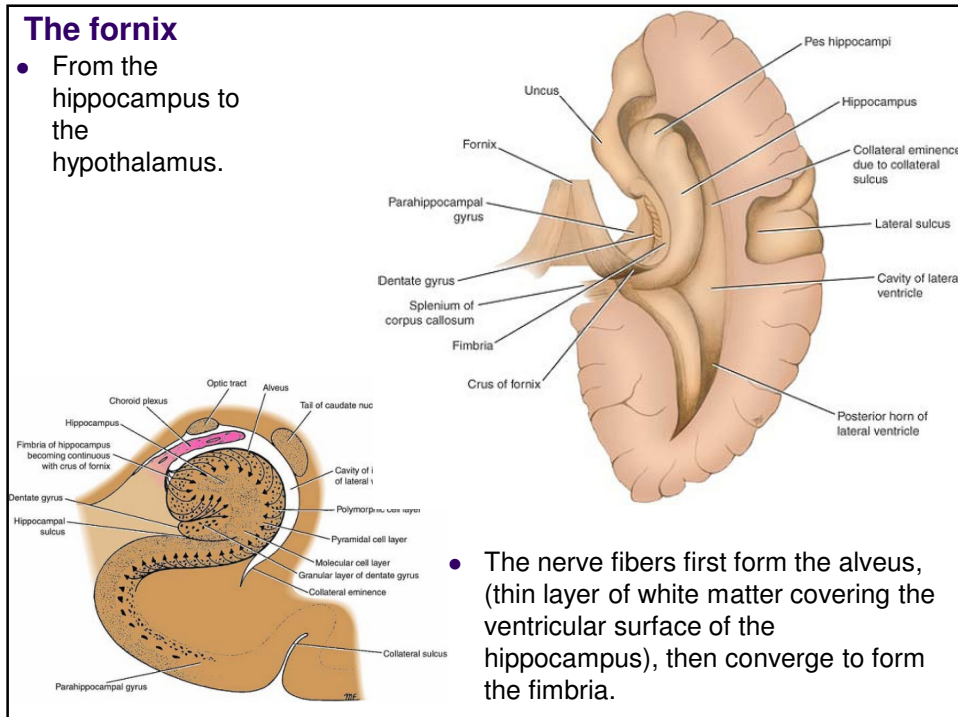
Habenular commissure

- Crosses the midline in the superior part of the root of the pineal stalk
- connects the Habenular nucleie on both sides



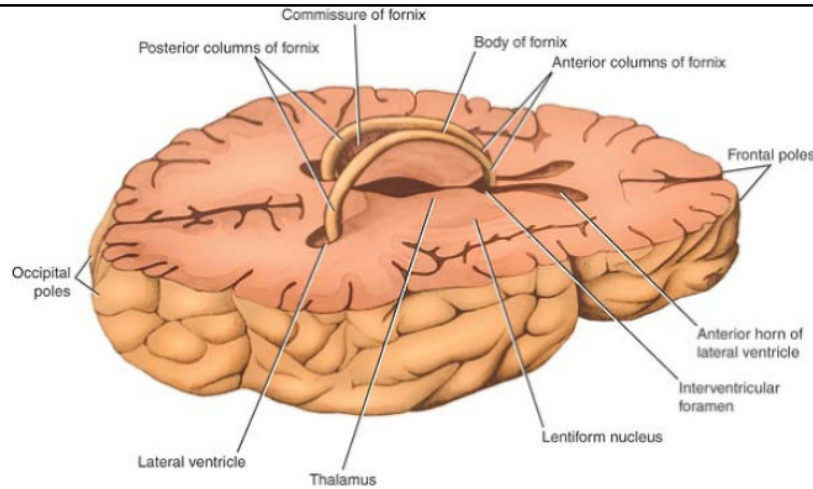
The fornix

- From the hippocampus to the hypothalamus.



- The nerve fibers first form the alveus, (thin layer of white matter covering the ventricular surface of the hippocampus), then converge to form the fimbria.

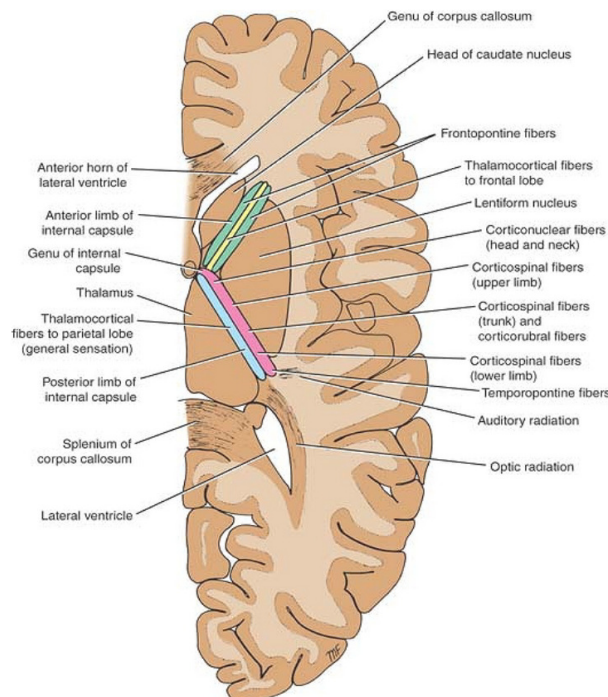
Fornix



- The fimbriae of the two sides arch forward above the thalamus and below the corpus callosum to form the posterior columns of the fornix.
- The two columns then come together in the midline to form the body of the fornix
- The commissure of the fornix consists of transverse fibers that cross the midline from one column to another just before the formation of the body of the fornix.

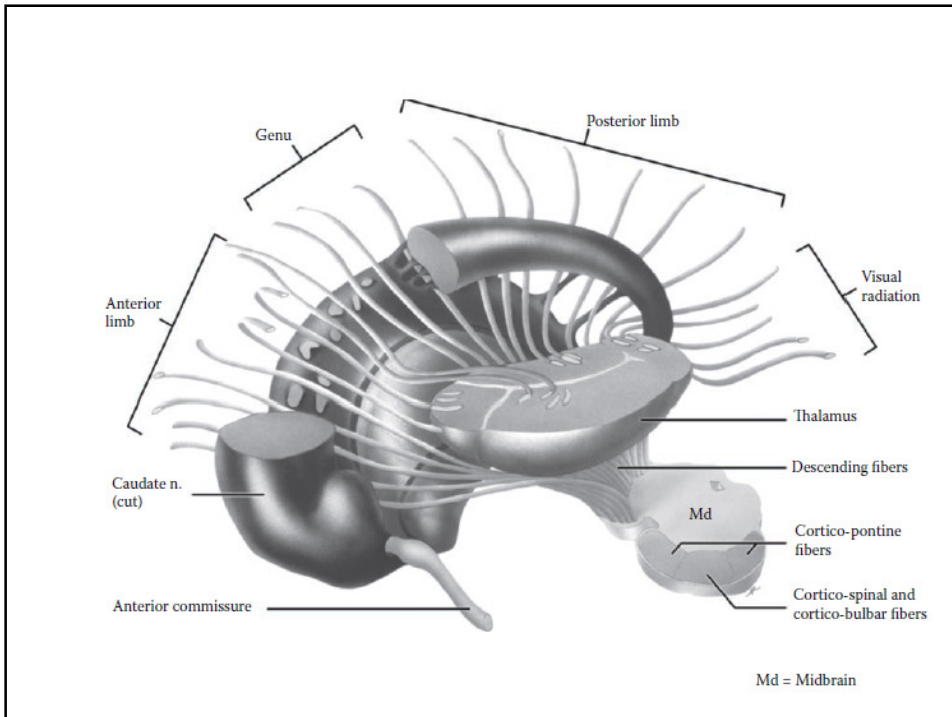
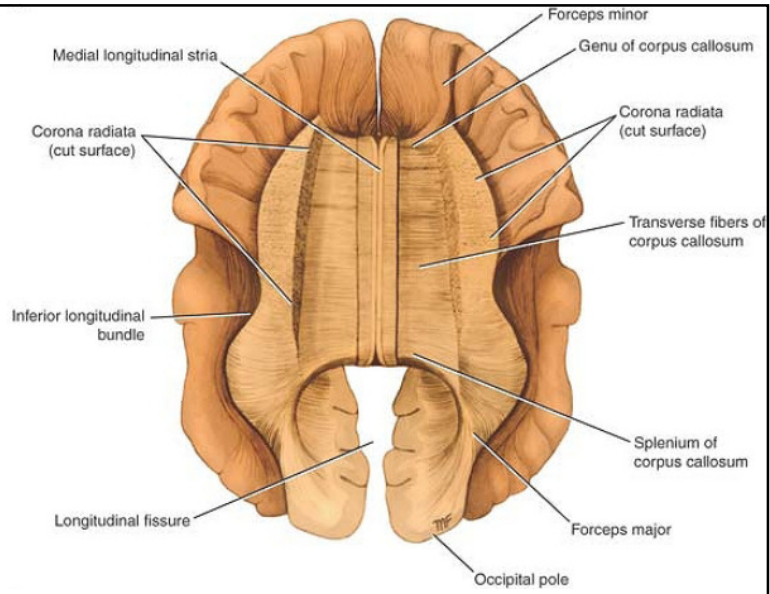
Projection Fibers

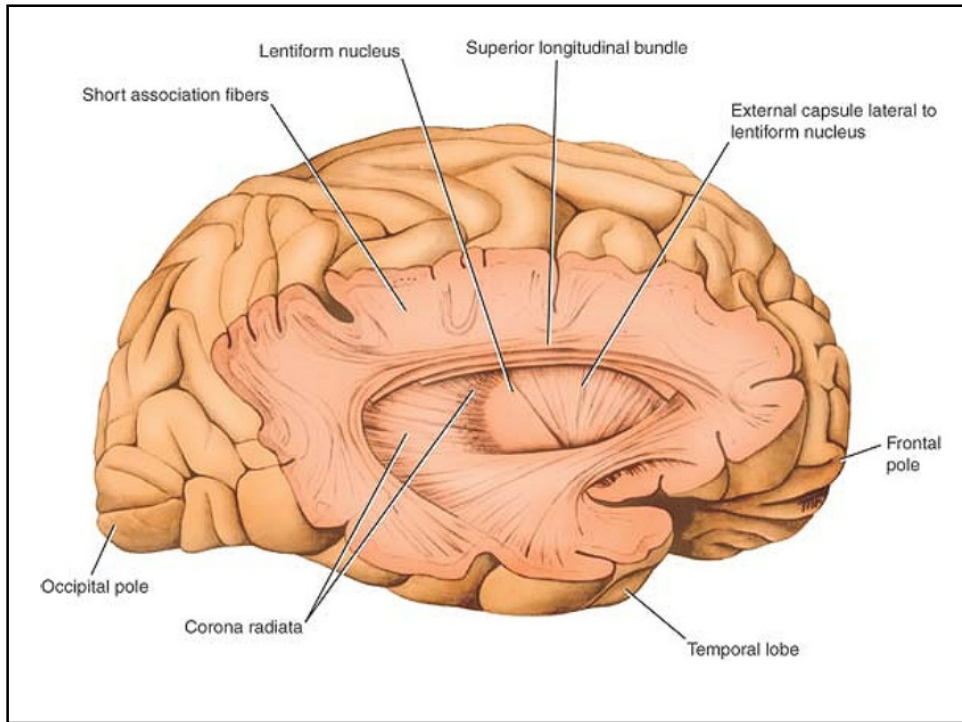
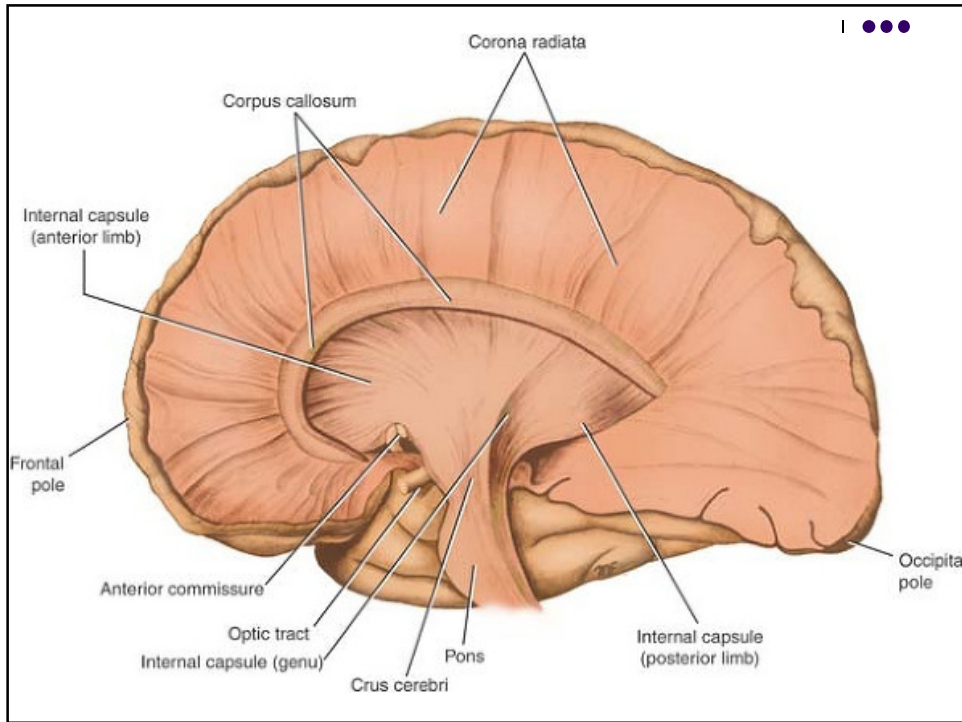
- Passing to and from the brainstem to the entire cerebral cortex
- **Internal capsule:**
 - Anterior limb
 - Posterior limb
 - Genu
- Medially: caudate nucleus and the thalamus
- Laterally: the lentiform nucleus



Projection Fibers

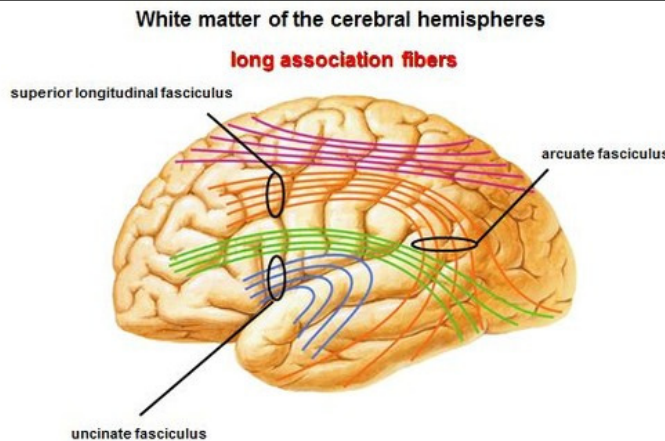
- **Corona radiata:** fibers emerging superiorly from between the nuclear masses
- **Optic radiation:** Most posterior





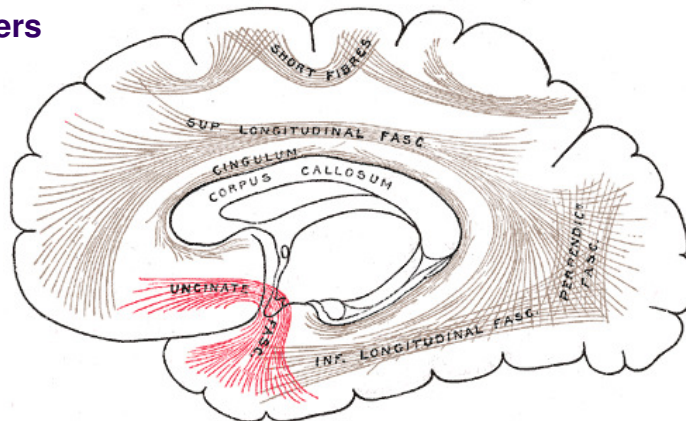
Association Fibers

- **The uncinate fasciculus:** connects the first motor speech area and the gyri on the inferior surface of the frontal lobe with the temporal lobe.
- **Arcuate fasciculus:** sweeps around the insula and connects the speech motor area with the speech comprehension area.



Association Fibers

- **The superior longitudinal fasciculus:** connects the anterior part of the frontal lobe to the occipital and temporal lobes.
- **The inferior longitudinal fasciculus:** from the occipital lobe, passing lateral to the optic radiation, and is distributed to the temporal lobe.

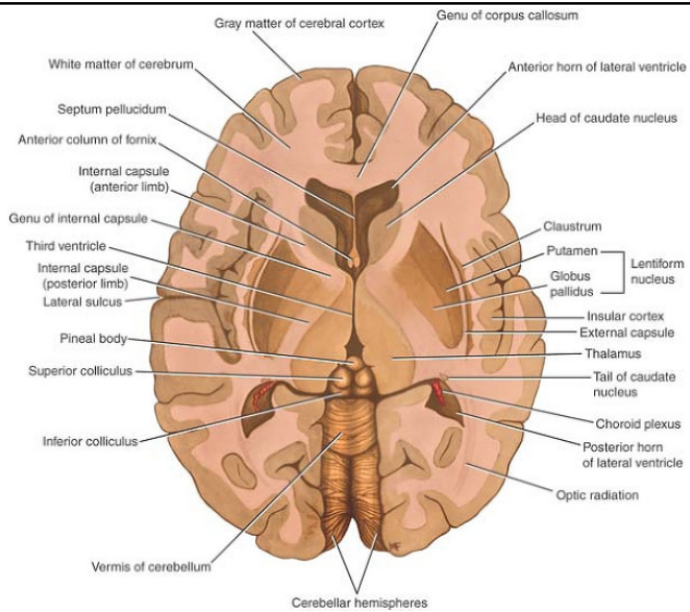


- **Short association fibers:** lie immediately beneath the cortex and connect adjacent gyri
- **The cingulum:** connects the frontal and parietal lobes with parahippocampal and adjacent temporal cortical regions

Septum

Pellucidum

- Thin vertical sheet of nervous tissue consisting of white and gray matter covered on either side by ependyma
- partition between the anterior horns of the lateral ventricles



Septum

Pellucidum

- Between the fornix and the corpus callosum.
- Between body of the corpus callosum and the rostrum.

